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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Steven L. Seed

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EXAMINER

BILGRAMI, ASGHAR H

ART UNIT

PAPER NUMBER

2443

MAIL DATE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/073,938	Applicant(s) SEED ET AL.	
	Examiner ASGHAR BILGRAMI	Art Unit 2443	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 October 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-58 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-58 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 February 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>3/26/08,4/11/08,10/27/08,10/28/08</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 101

1. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

2. Claims 23, and 38 are rejected under 35 U.S.C. 101 because they are directed towards a computer program code I.E software that is not embodied on a computer readable storage medium and is therefore directed to non-statutory subject matter.

Appropriate amendment in light of the disclosed specification is required to overcome the rejection.

3. Dependent claims 24-37 and 39-44 are also rejected under 35 U.S.C. 101 by virtue of their dependence on independent claims 23 & 38.

Examiner has shown one way to over come this rejection:

4. In claims 23 & 38 incorporate the following language “A computer program product **embodied on a computer-readable storage medium** including computer program code having instructions to cause”

5. **Additionally**, amend the specification on pag.30, paragraph.66 by **deleting** **“carrier wave”** as being an example of program product or storage device, because inclusion of “carrier wave” in the specification would make the claim language of independent claims 23 & 38 non-statutory.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1-58 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jungck (U.S. Pub. No. 2005/0021863) and Sim (U.S. Pub. No. 2003/0031176).

8. As per claims 1, 16, 23, 38 & 45 Jungck disclosed a method for managed object replication and delivery in a system comprising a network having one or more parent server sites (paragraphs.19) and one or more edge server sites distinct from said parent server sites(paragraph.25), the method comprising: directing a request by a client for an object to an optimal edge server site in the network (paragraphs. 27, 35 & 63), if the edge server site has the requested object, then serving the requested object to the client from the optimal edge server site (paragraph.56), otherwise if the edge server site does not have the requested object, the edge server site redirecting the client request to a parent server site in the network and attempting to server the requested object to the client from the parent server site (paragraph.57). However Jungck did not explicitly disclose if the edge server site does not have the requested object, conditionally replicating the requested object to the edge server site from the parent server site in the network, said replicating being based at least in part on a dynamically measure of popularity of the requested object.

Art Unit: 2443

In the same field of endeavor Sim disclosed that if the edge server site does not have the requested object, conditionally replicating {{Sim clearly discloses that content is replicated to the nodes on the network based on popularity of the content therefore there is a presence of “dynamic measurement” which determines content's popularity}} the requested object to the edge server site from the parent server site in the network (paragraph.138), said replicating being based at least in part on a dynamically measure of popularity of the requested object (paragraphs. 47 & 52).

It would have been obvious to one in the ordinary skill in the art at the time the invention was made to have incorporated to replicate an object at the edge server based on its popularity as disclosed by Sim in a method for managed object replication and delivery as disclosed by Jungck in order to make the delivery system more scalable resulting in lower traffic load on the network and providing most relevant & popular content to the requester more quickly making the system more robust and efficient.

9. As per claims 2, 24 & 46 Jungck-Sim disclosed the method of claim 1, wherein redirecting the client request to another server comprises said particular edge server redirecting the client request to a parent server in the network and serving the requested object to the client from the parent server (Jungck, paragraph.57).

10. As per claims 3, 25 & 47 Jungck-Sim disclosed the method of claim 1, wherein redirecting the client request to another server comprises said particular edge server site redirecting the client request to a parent server site in the network, and if that parent

Art Unit: 2443

server site does not have the requested object, then recursively redirecting the request until a parent server site in the network having the requested object is reached, and then serving the requested object to the client from the parent server that has the requested object (Jungck, paragraph.57).

11. As per claims 4, 26 & 48 Jungck-Sim disclosed the method of claim 1, wherein redirecting the client request to another server site comprises redirecting the client request to an origin server site if the requested object is not available at a parent server site in the network and serving the requested object to the client from the origin server site (Jungck, paragraph.57).

12. As per claims 5, 27 & 49 Jungck-Sim disclosed the method of claim 1, wherein directing a request by a client for an object to particular edge server site comprises directing the request by the client for an object to a best or optimal edge server site (Jungck, paragraph.63).

13. As per claims 6, 28 & 50 Jungck-Sim disclosed the method of claim 5, wherein a best or optimal edge server comprises an edge server site selected using at least one of a determination based on a best repeater selector, the likelihood of a copy of the requested object being available at the edge server site, and the bandwidth between the edge server site and the client (Jungck, paragraphs.63 & 71).

Art Unit: 2443

14. As per claims 7, 29 & 51 Jungck-Sim disclosed the method of claim 1, wherein said step of conditionally replicating the requested object to the particular edge server site comprises replicating the requested object to the particular edge server site from a parent server (Sim, paragraphs, 47 & 52).

15. As per claims 8, 9, 30, 31, 52 & 53 Jungck-Sim disclosed the method of claim 1, wherein said step of conditionally replicating comprises: if the requested object is determined to be popular based on said dynamic measure of popularity, and if the requested object is unavailable on parent server sites in the network, then replicating the requested object to a parent server site in the network from an origin server site (Sim, paragraphs, 47 & 52).

16. As per claims 10, 21, 32, 43& 54 Jungck-Sim disclosed the method of claim 1, wherein said dynamic measure of popularity of the requested object is popular (Sim paragraph.47 & 138) is determined using at least a request rate for the requested object (Jungck, paragraph.58).

17. As per claims 11, 12, 17, 18, 33, 34, 39, 40& 55 Jungck-Sim disclosed the system of claim 45, wherein at least one of the plurality of edge servers sites and the plurality of parent server sites delete an object if the object is no longer popular, as

Art Unit: 2443

determined based on said dynamic measure of popularity of the requested object (Sim, paragraphs, 47 & 230).

18. As per claims 13, 19, 35, 41, 56 & 61 Jungck-Sim disclosed the method of claim 1, wherein replicating the requested object comprises replicating the requested object in accordance with a dynamic replication threshold (Sim, paragraph, 230).

19. As per claims 14, 20, 36, 42 & 57 Jungck-Sim disclosed the method of claim 1, wherein said step of conditionally replicating the requested object on said particular edge server site comprises: replicating the requested object when said dynamic measure of popularity of the requested object is great than a dynamic threshold popularity and there is enough storage on said particular edge server site to replicate the requested object; otherwise, if there is not enough storage to replicate the requested object, then i) comparing the dynamic measure of popularity of the requested object against a dynamic measure of popularity of a least popular object in the storage, ii) if the dynamic measure of popularity of the requested object exceeds the popularity of the least popular object in the storage, deleting the least popular object from the storage, and then iii) repeating i) and ii) until enough storage is available for the requested object or until the dynamic measure of popularity of the requested object is less than the dynamic measure of popularity of the least popular object in the storage, and iv) replicating the requested object on said particular edge server site if there is enough storage on said particular edge server site (Sim, paragraph, 230).

20. As per claims 15, 22, 37, 44& 58 Jungck-Sim disclosed the method of claim 1, wherein the step of serving the requested object is performed separately from the step of conditionally replicating the requested object (Jungck, paragraphs.63 & 71).

Response to Arguments

Applicant's arguments filed 10/27/2008 have been fully considered but they are not persuasive.

21. Applicant argued that Jungck performs on-demand replication, regardless of popularity.

As to applicant's argument the Examiner has cited Sim for the "replication" limitation in the 103 rejection above not Jungck. Additionally, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

22. Applicant argued that Jungck's cache servers are not the same as edge servers.

Art Unit: 2443

As to applicant's argument Jungck's cache server are in fact the edge servers.

Examiner suggests applicant to carefully examine paragraphs.28, 33 and figure 1 which clearly explains that cache servers are edge servers.

Finally, with respect to applicants argument first the examiner would like to clarify the fact that a sever can either be, an edge sever or a cache server. Having a server at the networks edge (edge server) does not change the nature of the server itself, its purpose is to serve the data that is being requested from it (please read paragraph 56 on page 7 of Jungck). Jungck clearly discloses that when a content request is not in the cache server the cache server forwards (redirects) to the content source (I.E. origin server) which serves the content to the requester (please read paragraph 57 on pages 7 & 8).

23. Applicant argued that Sim does not disclose replication of object to the edge server if the object is popular but rather shows pruning of the content from the cache based on popularity.

As to applicant's arguments examiner "pruning" content is one of the embodiments of the Sim's disclosure. Examnier advises the applicant to read paragraphs 19, 20, 47 & 52 of Sim which explains the measurement and replication of most sought after (popular) content (object) into the edge server(s) across the network.

Art Unit: 2443

24. Applicant argues that no proposed combination of Jungck and Sim would produce the presently claim invention.

Examiner respectfully points applicant to read the rejection made on line 8 of this office action, which clearly disclose how these two references can be combined to show the applicant's claimed invention.

Conclusion

25. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

26. Jacobs et al U.S. 6,732,237 B1 discloses Multi-tier caching system.

27. Challenger et al U.S 6,598,121 B2 discloses system and method for coordinated hierarchical caching and cache replacement.

28. Aviani Jr. et al U.S. 6,594,260 B1 discloses content routing.

29. Singal et al U.S. 6,859,840 B2 discloses prefix caching for media objects.

30. Buddhikot et al U.S. 6,999,988 B2 disclosed method and system for data layout and replacement in distributed streaming caches on the Internet.

31. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

Art Unit: 2443

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ASGHAR BILGRAMI whose telephone number is (571)272-3907. The examiner can normally be reached on 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tonia L.M. Dollinger can be reached on 571-272-4170. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Application/Control Number: 10/073,938
Art Unit: 2443

Page 12

/A. B./
Examiner, Art Unit 2443

/Tonia LM Dollinger/
Supervisory Patent Examiner, Art Unit 2443